INSIGHT

YEAR 12 *Trial Exam Paper*

2013

Further Mathematics

Written examination 1

Worked solutions

This book presents:

- correct solutions with full working
- explanatory notes
- tips

SECTION A – Core

Question 1

Answer is D

Worked solution

There are 6 sinkers weighing 2 g and there are 12 sinkers weighing 1 g, which makes a total of 18 sinkers weighing less than 3 g.

Question 2

Answer is E

Worked solution

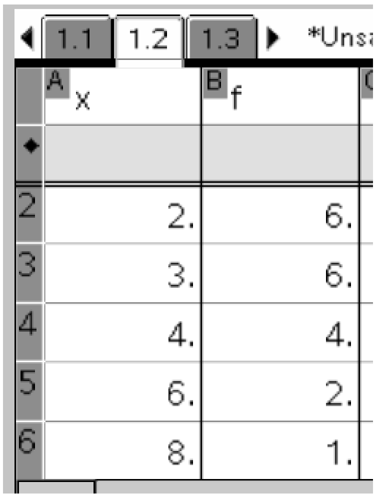
The mean can be calculated by using the formula

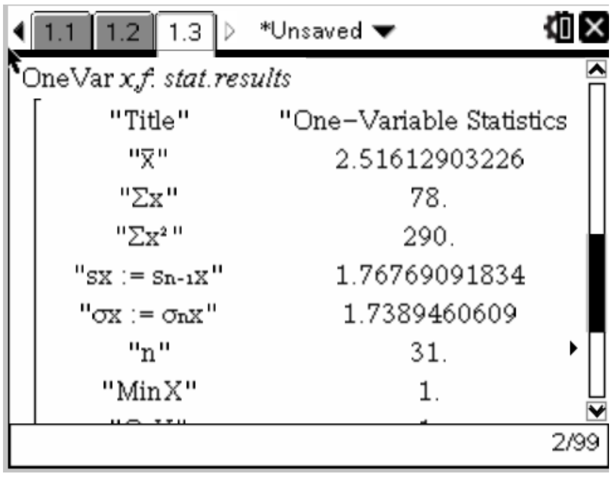
$$\text{mean} = \frac{\text{sum of all weights}}{\text{number of sinkers}}$$

$$\text{mean} = \frac{1\times12+2\times6+3\times6+4\times4+6\times2+8\times1}{31}$$

$$\text{mean} = 2.516$$

The standard deviation s_x must be found using the calculator. Alternatively, both the mean $\bar{x}$ and the standard deviation s_x can be calculated using the calculator.
Enter data into a lists and spreadsheet page. Then use stat calculations, one-variable stats to find the stat results.





Question 3

Answer is D

Worked solution

The line in the centre of the box represents the median (half the scores are above and half are below this value).

In Class A half (10 students) are above 60, therefore A is correct.

The highest score in Class B was 98 whereas the highest score in Class A was 94, therefore B is correct.

A quarter of Class B scored 40 or below but less than a quarter of Class A scored below 40, therefore C is correct.

Both the range and interquartile range of Class B (68 and 30 respectively) were higher than Class A (64 and 20), therefore E is correct.

10 students in Class B achieved 46 (not 43) or lower, so D is incorrect.

Question 4

Answer is A

Worked solution

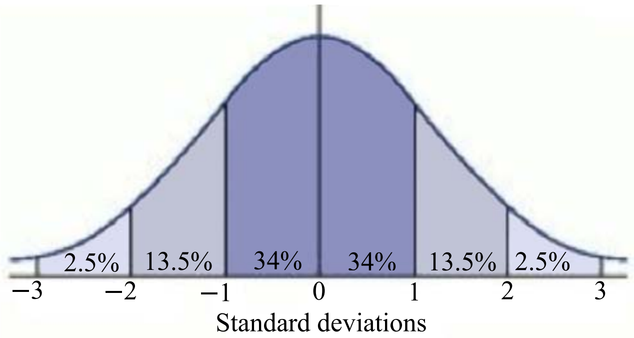
The change will result in different numbers, but they will be equally spread out. Standard deviation is a measure of spread, and the spread remains unchanged (so B and C are incorrect and A is correct). The mean and median would be increased (so D and E incorrect).

Question 5

Answer is E

Worked solution

Use the normal distribution curve and the mean of 260 and standard deviation of 15.



The percentage of boxes between 245 and 290 is equal to (34 + 34 + 13.5) = 81.5%

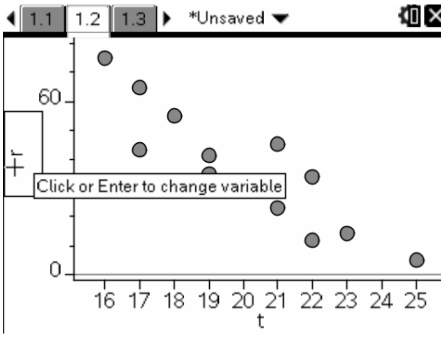
81.5% of 500 = 407.5; round up to 408

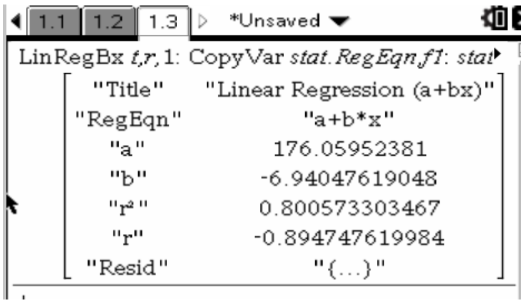
Question 6

Answer is D

Worked solution

Use the calculator to sketch the scatterplot and calculate the r and r^2 values.





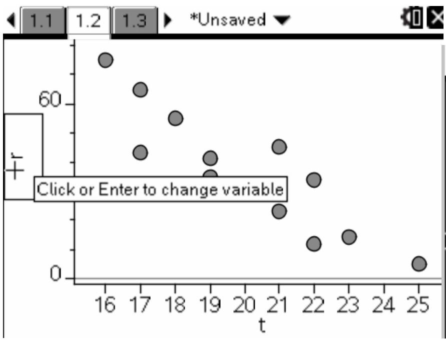
$r = -0.895$ (A incorrect)
The relationship is negative (B incorrect).
Temperatures don't *cause* rainfall (C incorrect).
Coefficient of determination can be used to find a percentage of variation in one variable explained by another (D correct).
Pearson's correlation coefficient cannot be used to find a percentage of variation in one variable explained by another (E incorrect).

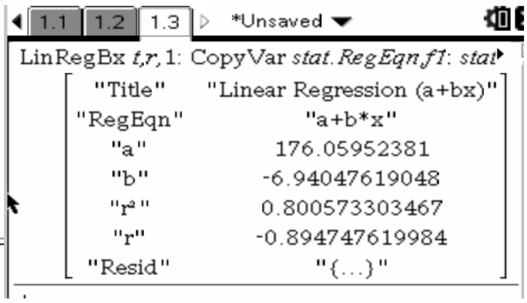
Question 7

Answer is E

Worked solution

Use the calculator to sketch the scatterplot and calculate the equation of the least squares regression line.





Tip

- *Don't forget that temperature is the independent variable.*

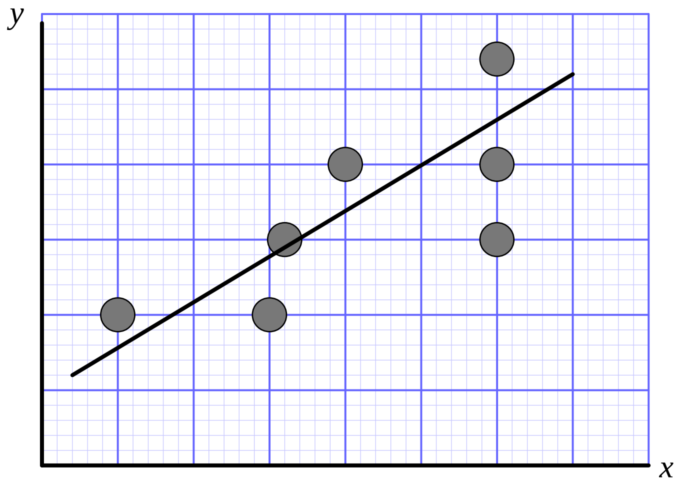
Question 8

Answer is D

Worked solution

21.5 is the gradient. Since the gradient is multiplied by the number for length, as length increases the weight increases by 21.5 g for each 1 cm increase in length.

Question 9



Answer is A

Tip

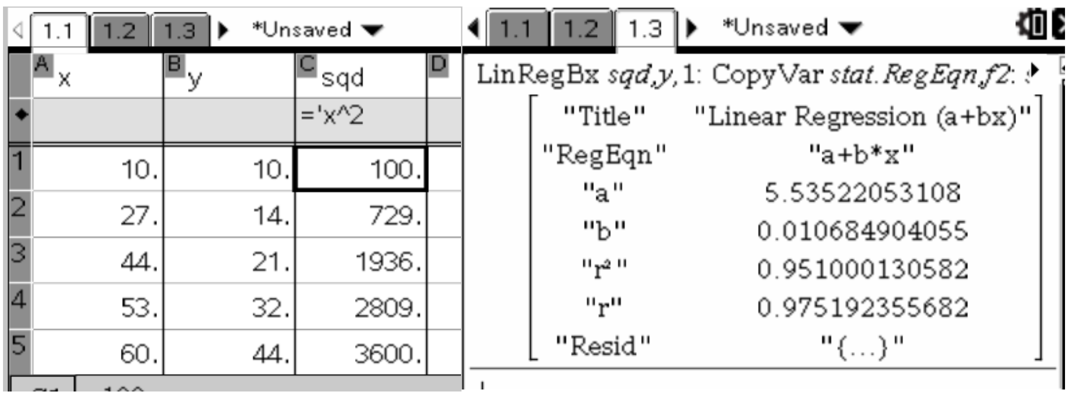
- *The residual for each point is equivalent to the vertical distance of each point from the least squares line.*

Question 10

Answer is D

Worked solution

Use the calculator to enter the data into a lists and spreadsheet page. Create column C by squaring column A. Then calculate the regression equation using column C as the independent variable and column B as the dependent variable.



Question 11

Answer is A

Worked solution

If there are 4 seasons the indices must add up to 4.
$4-(1.25+1.10+0.99)=0.66$

Question 12

Answer is C

Worked solution

$$\text{deseasonalised value}=\frac{\text{actual value}}{\text{seasonal index}}$$

Transposing gives:
$\text{actual value}=\text{deseasonalised value}\times\text{seasonal index}$

$1500\times1.25=1875$

Question 13

Answer is B

Worked solution

Median of 27, 29, 37 and 41 is 33 (between day 3 and day 4).
Median of 21, 29, 37 and 41 is 33 (between day 4 and day 5).
Median of 33 and 33 is 33 (which lines up with day 4).

Day	1	2	3	4	5	6	7
Temp	25	27	29	37	41	21	23
			33	**33**			
		33					

SECTION B

Module 1: Number patterns

Question 1

Answer is D

Worked solution

An arithmetic sequence increases or decreases by the same amount for each term. Since it decreases by 6 from the second term (7) to the fourth term (1) it must decrease by 3 each time. So the common difference, *d*, is 3.

The sequence is 10, 7, 4, 1, –2, … and the first term is 10.

Question 2

Answer is D

Worked solution

The easiest way to calculate the 15th term is to use the following formula, where *a* is the first term, *n* is the number of the term you are looking for and *d* is the common difference.

$t_n = a + (n-1)d$

$t_{15} = 3 + (15-1) \times 4$

$t_{15} = 59$

Tip

- *Alternatively you could write down all 15 terms (each term is 4 higher than the previous term).*

Question 3

Answer is B

Worked solution

Refer to the formula for a term in a geometric series

$t_n = ar^{(n-1)}$

where *a* is the first term and *r* is the common ratio.
Option B is the only sequence in which the next term is obtained by multiplying the preceding term by the same number. In this case $a = -9$ and $r = \frac{1}{3}$.

Question 4

Answer is E

Worked solution

This is an example of an arithmetic sequence because the next term is obtained by adding *d*, the common difference, to the previous term. The rule below can be used to calculate the sum, S_n (392) of *n* (7) terms in an arithmetic sequence. *a* is the first term (20). Use the solve function on your calculator or transpose the following formula to find *d*.

$$s_n = \frac{n}{2}(2a + (n-1)d)$$

$$392 = \frac{7}{2}(2 \times 20 + (7-1)d)$$

$$d = 12$$

Question 5

Answer is C

Worked solution

The trick here is to recognise that the water leakage each day is the geometric sequence.

The geometric sequence is 100, 95, 90.25, with *a* = 100, and $r = \frac{95}{100} = \frac{90.25}{95} = 0.95$.

The sum of the geometric sequence can be found using the formula below, where *a* is the first term (100) and *r* is the common ratio (0.95). The common ratio can be found by dividing any term by the next term in a geometric sequence.

$$\text{total leakage} = s_\infty = \frac{a}{1-r}$$

$$= \frac{100}{1-0.95}$$

$$= 2000$$

So the amount of water left in the tank is 3000 – 2000 = 1000 L.

Question 6

Answer is A

Worked solution

To increase last year's flock by 80%, multiply r_n by 1.8.

Tip

- *Don't forget to add the 50 for the new purchases each year.*

Question 7

Answer is C

Worked solution

This is a geometric sequence with the first term a = 55 000 and the common ratio r = 0.85.

$t_n = ar^{(n-1)}$, where a = 55 000 and r = 0.85, and $55\ 000 \times 0.85^{(n-1)} \leq 20\ 000$

$n \geq 7.2$

When n = 7, value = \$20 743.20. When n = 8, value = \$17 631.70
Therefore when n = 8, the car will be valued below \$20 000 for the first time.
n = 8 is 2019.

Question 8

Answer is E

Worked solution

If the sum of an arithmetic sequence is positive then it must have more positive numbers than negative numbers. Whether the sequence is increasing or decreasing the middle term (the 3rd one in this sequence) must be positive.

Examples of arithmetic sequences summing to 25 are 1, 3, 5, 7, 9; 9, 7, 5, 3, 1; −5, 0, 5, 10, 15; and 15, 10, 5, 0, −5. There may be others but if the total is positive the 3rd term must be positive.

Question 9

Answer is E

Worked solution

Since we know $t_1 = 1$ and $t_2 = 3$ we can use $t_{n+2} = t_{n+1} - 4t_n$ to find t_3, t_4 and then t_5. It is not possible to find t_5 without first finding t_3 and t_4.
$t_3 = 3 - 4 = -1$
$t_4 = -1 - 12 = -13$
$t_5 = -13 - -4 = -9$

Module 2: Geometry and trigonometry

Question 1

Answer is A

Worked solution

Identify that you are trying to find the opposite side (XY). You know the hypotenuse (XZ) and you know the angle 30°. Use the sin ratio to find the opposite side.

$$O = H\sin x$$
$$XY = 12 \times \sin 30$$
$$XY = 12 \times 0.5$$
$$XY = 6$$

Question 2

Answer is C

Worked solution

ABE is a right-angled triangle. We are looking for the hypotenuse and we know the lengths of the 2 shorter sides. Using Pythagoras:

$$a^2 + b^2 = c^2$$
$$4^2 + 4.29^2 = c^2$$
$$16 + 18.32 = c^2$$
$$34.32 = BE^2$$
$$BE = 5.86$$

The closest answer is 6.

Question 3

Answer is B

Worked solution

Calculate the area of the triangle and the area of the rectangle.
area of triangle : area of rectangle

$$\frac{1}{2}ba : lw$$
$$\frac{1}{2} \times 8.58 \times 4 : 8.58 \times 4$$
$$1 : 2$$

Question 4

Answer is D

Worked solution

Use the rule below to calculate the area of a non-right-angled triangle

$$A = \frac{1}{2} ab \sin C$$

$$A = \frac{1}{2} \times 10 \times 8 \sin 100$$

$$A = 39.39$$

The closest answer is 39.

Question 5

Answer is E

Worked solution

Use the sine rule:

$$\frac{\sin A}{a} = \frac{\sin B}{b}$$

Therefore, $\dfrac{\sin XYZ}{10} = \dfrac{\sin 56}{12}$

$$\sin XYZ = \frac{10 \times \sin 56}{12}$$

$$XYZ = \sin^{-1}\left(\frac{10 \times \sin 56}{12}\right)$$

$$XYZ = 43.70$$

The closest answer is 44.

Question 6

Answer is B

Worked solution

In this case use the cosine rule:

$$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$$

Therefore, $\cos XYZ = \dfrac{(10^2 + 11^2 - 9^2)}{(2 \times 10 \times 11)}$

$$XYZ = \cos^{-1}\left(\frac{(10^2 + 11^2 - 9^2)}{(2 \times 10 \times 11)}\right)$$

$$XYZ = 50.48$$

$$XYZ = 50°28'44''$$

Question 7

Answer is E

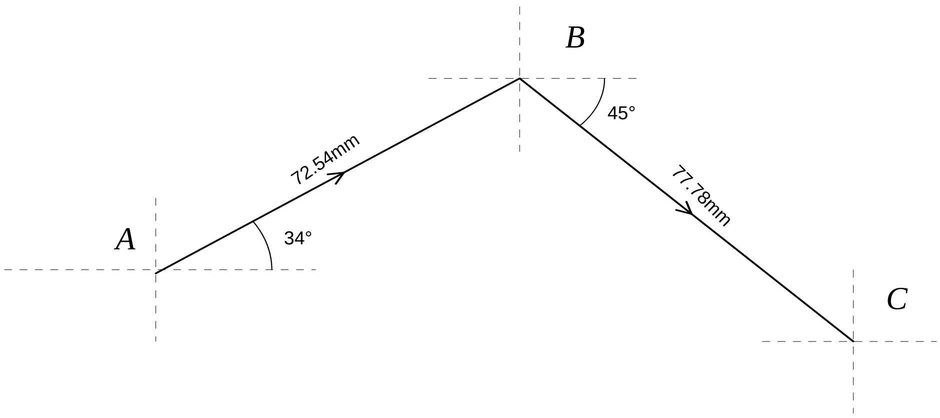
Worked solution

Ratio of the areas of the ends (circle) is $1:3^2$, which is 1:9.
But the height of the bucket has also been doubled, so the volume ratio is 1:18.

Question 8

Answer is B

Worked solution



Using geometry, discover that the angle *ABC* is 101°. Use this angle and the cosine rule to find the distance from *A* to *C*.

$$a^2 = b^2 + c^2 - 2bc \times \cos A$$
$$(\text{distance to travel})^2 = 72.54^2 + 77.78^2 - 2 \times 72.54 \times 77.78 \times \cos 101$$
$$\text{distance to travel} = 116.04 \text{ mm}$$

Then use this answer and the sine rule to find the angle *ACB*.

$$\frac{\sin C}{c} = \frac{\sin B}{b}$$
$$\frac{\sin C}{72.54} = \frac{\sin 101}{116.04}$$
$$C = 37.85 \approx 38°$$

Use this answer and the fact that there are 360° in a circle to find the bearing the ant must travel.

Therefore the ant must walk on a bearing of 360 – 45 – 38 = 277°T.

Tip

- *Remember the bearing is the direction clockwise from North.*

Question 9

Answer is D

Worked solution

To find the ratio *DC*:*DB* we must use the tan ratio twice to find the lengths of *DC* and *DB*. Although we don't know the height, since we are only after the ratio this won't matter as the height on each side of the ratio will cancel.

$$\begin{aligned} DC &: DB \\ \text{height}\times\tan 57 &: \text{height}\times\tan 40 \\ \tan 57 &: \tan 40 \\ 1.84 &: 1 \end{aligned}$$

Module 3: Graphs and relations

Question 1

Answer is B

Worked solution

First find the gradient between the 2 points:

$$\text{Gradient} = \frac{y_2 - y_1}{x_2 - x_1}$$
$$= \frac{6-1}{-2-3}$$
$$= -1$$

Then use $y = mx + c$ to find the y-intercept.

$$y = mx + c$$
$$1 = -1(3) + c$$
$$c = 4$$

Therefore, $y = -x + 4$ or $x + y = 4$.

Question 2

Answer is A

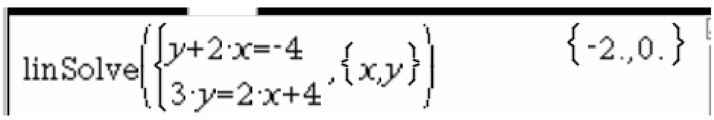
Worked solution

This could be solved manually by substitution, since $y = -2x - 4$ so

$$3(-2x-4) = 2x+4$$
$$-6x-12 = 2x+4$$
$$-8x = 16$$
$$x = -2$$

Substituting back in gives $y = 0$.

Alternatively, use the calculator (menu, algebra, solve system of equations).



Question 3

Answer is B

Worked solution

Average speed is distance travelled divided by time.

$$\frac{70}{5} = 14$$

Question 4

Answer is A

Worked solution

Steepest positive or negative gradient occurred in the first hour, when speed was 40 km/h.

Question 5

Answer is E

Worked solution

From the graph the equations are
revenue = $800x$
and

$$\text{cost} = \frac{1000}{3}x + 2800$$

Then use the calculator to solve the equations.

$$\text{linSolve}\left(\begin{cases} y = 800 \cdot x \\ y = \dfrac{1000}{3} \cdot x + 2800 \end{cases}, \{x, y\}\right)$$

$$\{6., 4800.\}$$

Or you could read the answer from the graph. To break even they must make and sell 6 surfboards, which cost \$4800.

Question 6

Answer is D

Worked solution

They must sell 6 to break even, more to make a profit. If they sell fewer than 6 they make a loss.

Question 7

Answer is A

Worked solution

First find the equations of the lines: $y = 2$, $y = x$ and $3y + 2x = 24$.

Then test a point on one side of the lines inside the feasible region and form your inequations.
For example, the point (4, 3) is inside the feasible region.
Therefore, $y \leq x$, $y \geq 2$ and $3y + 2x \leq 24$.

Question 8

Answer is C

Worked solution

Purchase at least as much Growfast as Bigleaf, therefore $g \geq b$

Purchase at least 2000 units of nitrogen, therefore $50g + 30b \geq 2000$

Purchase at least 3000 units of phosphorus, therefore $20g + 50b \geq 3000$

Question 9

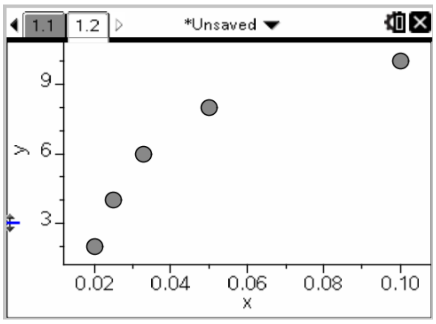
Answer is C

Worked solution

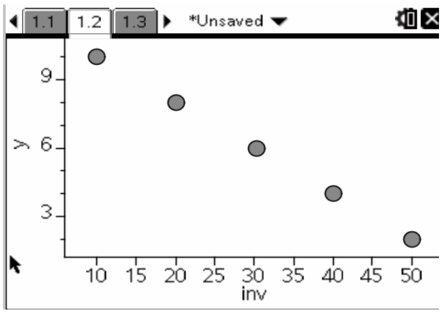
$$\frac{1}{0.02}=50,\ \frac{1}{0.025}=40,\ \frac{1}{0.033}=30,\ \frac{1}{0.050}=20,\ \frac{1}{0.100}=10$$

Alternatively, use the calculator. It may be a case of trial and error; you can use the wheel of transformations to fast track your options.

A x	B y
0.02	2.
0.025	4.
0.033	6.
0.05	8.
0.1	10.



A x	B y	C inv
		=1/'x
0.02	2.	50.
0.025	4.	40.
0.033	6.	30.3030...
0.05	8.	20.
0.1	10.	10.



Module 4: Business-related mathematics

Question 1

Answer is C

Worked solution

When an r% increase has been applied (in the case of GST r = 10%) this formula applies.

$$\begin{aligned}\text{original price} &= \text{new price} \times \frac{100}{(100+r)} \\ &= 148.50 \times \frac{10}{11} \\ &= 135\end{aligned}$$

Question 2

Answer is A

Worked solution

simple interest $= \dfrac{Prt}{100}$, where P is the principal, r is the rate (as a percentage), and t is time in years

$$\begin{aligned}\text{simple interest} &= \frac{Prt}{100} \\ &= \frac{8000 \times 4.5 \times 3}{100} \\ &= 1080\end{aligned}$$

Question 3

Answer is D

Worked solution

If an r% discount is applied to an item then the new price = original price $\times \frac{(100-r)}{100}$

In this case we need to work backwards from the final new price back to the original price by transposing the formula to original price = $\dfrac{\text{new price}}{\left(\frac{(100-r)}{100}\right)}$.

So, the price before the autumn discount is calculated by

$$\begin{aligned}\text{original price} &= \frac{750}{\left(\frac{(100-10)}{100}\right)}\\ &= \frac{750}{0.9}\\ &= 833.33\end{aligned}$$

Repeat this process for the other 2 discounts until we get the original price before the February sale:

$$\frac{833.33}{0.9} = 925.93$$

$$\frac{925.93}{0.85} = 1089.32$$

Question 4

Answer is B

Worked solution

This is a compound interest question so we will use the compound interest formula

$A = P \times \left(\frac{(1+r)}{100n}\right)^{nt}$ where P is the principal, r is the interest rate, n is the number of compounding periods per year and t is time in years. (A is the total value of investment after interest is added.)

$$\begin{aligned}A &= 12\ 000 \times \left(\frac{1+7.5}{(12\times 100)}\right)^{(12\times 3)}\\ &= 15\ 017.35\end{aligned}$$

Question 5

Answer is A

Worked solution

For this question the key is to determine the minimum balance for each month in question (July: \$2450, August: \$2450, September: \$3200) and use the simple interest formula $\text{simple interest} = \frac{Prt}{100}$ 3 times to calculate the 3 interest amounts and then add on the final balance as well.

Remember the t value for one month is $\frac{1}{12}$.

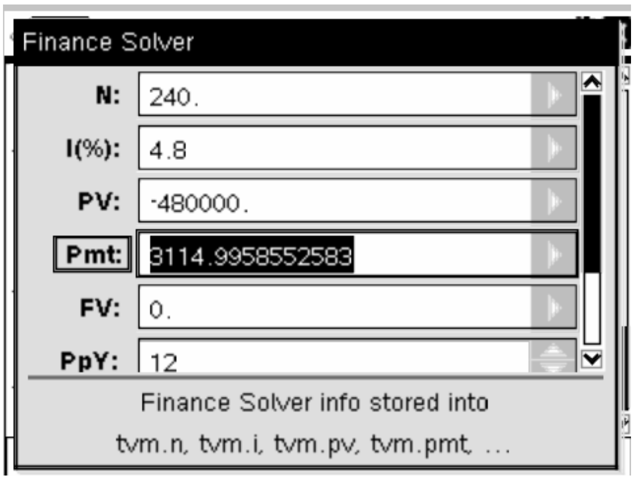
$$A = 2\left(\frac{2450 \times 3.5}{1200}\right) + \left(\frac{3200 \times 3.5}{1200}\right) + 3200$$
$$= 3223.63$$

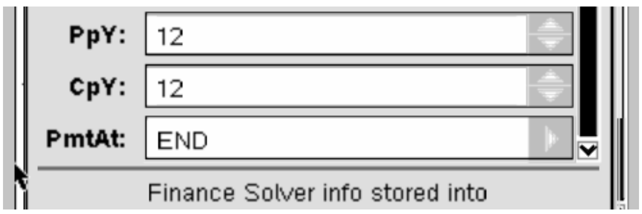
Question 6

Answer is C

Worked solution

This is clearly an annuity question so we need to use the TVM solver on a calculator.





Question 7

Answer is E

Worked solution

Before you can use the effective interest rate formula you need to calculate the total amount paid.

(3000 + 1000 × 12 × 3) = 39 000, which means he pays \$16 000 in interest

effective interest rate per annum, $r_e = \dfrac{100I}{Pt} \times \dfrac{2n}{(n+1)}$

where I = total interest paid

P = principal owing after the deposit has been deducted

t = number of years

n = number of payments made in total

$$\frac{100\cdot 16000\cdot 72}{20000\cdot 3\cdot 37} \qquad 51.8918918919$$

Question 8

Answer is B

Worked solution

First calculate the total amount of depreciation (\$48 000 – \$8000)

depreciation value = \$40 000

total depreciation = no. of copies × depreciation per copy

$$\begin{aligned}\text{no. of copies} &= \frac{\text{total depreciation}}{\text{depreciation per copy}}\\ &= \frac{40\ 000}{0.005}\\ &= 8\ 000\ 000\end{aligned}$$

Question 9

Answer is E

Worked solution

A perpetuity is similar to a simple interest account. Interest is paid out, not compounded. The value of the contribution is equivalent to the simple interest.

Since it is paid monthly, $t = \dfrac{1}{12}$.

$$\begin{aligned}\text{simple interest} &= \frac{Prt}{100}\\ &= 500\ 000 \times \frac{3.2}{1200}\\ &= 1333.33\end{aligned}$$

Module 5: Networks and decision mathematics

Question 1

Answer is C

Worked solution

The degrees of a vertex is equal to the number of edges coming from that vertex. Add up the degree of all vertices:
1 + 3 + 3 + 3 + 2 + 4 = 16

Question 2

Answer is E

Worked solution

A Hamiltonian circuit must pass through each other vertex exactly once after starting at *A* and then finish at *A*. Only answer E starts at *A* and finishes at *A* and goes through each vertex exactly once.

Question 3

Answer is C

Worked solution

For an Euler circuit to be possible all vertices must have even degree. *G* and *A* are odd therefore C is not true.

Question 4

Answer is B

Worked solution

The only edges going to short black come from Beatrice and April.

Question 5

Answer is E

Worked solution

To find the minimal spanning tree, start at any vertex and choose the lowest weighted edge coming from that vertex (e.g. *G*, 23). Then consider any of the connected edges (*G* and *A*) and choose the lowest weight coming from either connected edge (e.g. 26 from *A*). Continue to do this until all vertices are connected, but do not choose an edge in this process that makes a circuit within the network because then the subgraph would not be a tree.

23+26+39+47+38+57	230.

Question 6

Answer is C

Worked solution

The critical path or paths through the network are the longest paths and also give us the overall shortest completion time of the whole project.
The critical paths are *AFHI* and *BGHI*, and both take 19 hours.

Question 7

Answer is D

Worked solution

Earliest starting time for activity *I* is 14, so activity *D* has 3 hours slack time.

Question 8

Answer is A

A '1' in an adjacency matrix represents an edge in the network diagram between 2 vertices. For example, the edge between vertices A and B is represented by a 1 in row 1 column 2, as well as a 1 in row 2 column 1. The 2 in row 2 column 3 and the 2 in row 3 column 2 represent the double edge between vertices *B* and *C*, etc.

Tip

- *As well as 1 indicating when a vertex is adjacent, a loop is also represented by a 1 in an adjacency matrix.*

Question 9

Answer is E

Worked solution

Euler's rule can be used for a connected planar graph. Since we know that number of faces is equal to the number of vertices, represent these values with the same pronumeral (x) and solve the rule for x.

$$\begin{aligned} v+f &= 2+e \\ x+x &= 2+14 \\ 2x &= 16 \\ x &= 8 \end{aligned}$$

Therefore, the number of faces (and vertices) is 8.

Module 6: Matrices

Question 1

Answer is E

Worked solution

The order of a matrix product is the number of rows in the first matrix by the number of columns in the second. For the product to be defined, the number of columns in the first matrix must be equal to the number of rows in the second.

In the question, matrix A is 4×3 and B is 3×1 so the product is defined, because the number of columns in first (3) = the number of rows in second (3).
The order of the product is rows in first (4) by columns in second (1).

Question 2

Answer is D

Worked solution

This matrix calculation is easily done on the calculator.

$$2\cdot\begin{bmatrix}2 & 3\\ 0 & -2\end{bmatrix}-\begin{bmatrix}-2 & 5\\ 1 & 0\end{bmatrix} \qquad \begin{bmatrix}6. & 1.\\ -1. & -4.\end{bmatrix}$$

Question 3

Answer is C

Worked solution

Step 1: Set up the matrix equation. Make sure the numbers in the first matrix are in the order of the coefficients of x, y and z.

$$\begin{bmatrix}0 & 0 & 3\\ -2 & 1 & 2\\ 0 & -2 & 2\end{bmatrix}\begin{bmatrix}x\\ y\\ z\end{bmatrix}=\begin{bmatrix}10\\ 7\\ 2\end{bmatrix}$$

Step 2: Find the inverse matrix using your calculator.

$$\begin{bmatrix}0 & 0 & 3\\ -2 & 1 & 2\\ 0 & -2 & 2\end{bmatrix}^{-1} \qquad \begin{bmatrix}\frac{1}{2} & \frac{-1}{2} & \frac{-1}{4}\\ \frac{1}{3} & 0 & \frac{-1}{2}\\ \frac{1}{3} & 0 & 0\end{bmatrix}$$

Step 3: The transposed matrix equation is now

$$\begin{bmatrix}x\\ y\\ z\end{bmatrix}=\begin{bmatrix}\frac{1}{2} & -\frac{1}{2} & -\frac{1}{4}\\ \frac{1}{3} & 0 & -\frac{1}{2}\\ \frac{1}{3} & 0 & 0\end{bmatrix}\begin{bmatrix}10\\ 7\\ 2\end{bmatrix}$$

Question 4

Answer is D

Worked solution

The question can be represented by a 1×3 matrix (containing numbers of items) multiplied by a 3×1 matrix (containing prices) to give a 1×1 matrix, which represents the total amount of money she spent.

Question 5

Answer is A

Worked solution

det(A) = 0 therefore A^{-1} is undefined and A is singular.

Question 6

Answer is C

Worked solution

Use the formula to find the inverse of matrix A.

If matrix $A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$ then $A^{-1} = \dfrac{1}{ad - bc}\begin{bmatrix} d & -b \\ -c & a \end{bmatrix}$

$$A^{-1} = \begin{bmatrix} \dfrac{1}{3-x} & -\dfrac{1}{3-x} \\ -\dfrac{x}{3-x} & \dfrac{3}{3-x} \end{bmatrix}$$

$$\text{solve}\left(\frac{1}{3-x} = 1, x\right) \qquad x = 2$$

Question 7

Answer is D

Worked solution

The transition matrix is $\begin{bmatrix} 0.8 & 0.05 \\ 0.2 & 0.95 \end{bmatrix}$ and the initial state matrix is $\begin{bmatrix} 20 \\ 30 \end{bmatrix}$; 20 January is 3 Sundays later, therefore the calculation is

$$\begin{bmatrix} 0.8 & 0.05 \\ 0.2 & 0.95 \end{bmatrix}^3 \cdot \begin{bmatrix} 20 \\ 30 \end{bmatrix} \qquad \begin{bmatrix} 14.21875 \\ 35.78125 \end{bmatrix}$$

Therefore 36 people bought the *Sunday Gazette* on 20 January 2013.

Question 8

Answer is B

30%

Tip

- *Read the top horizontal row as ‘from’ and the right vertical side as ‘to’.*

Question 9

Answer is E

Worked solution

Both B and C must be square matrices because the result of $B - C$ is squared. Since the product of this resulting matrix and A is 2×3, then B and C must have been 3×3 and A must be 2×3.

END OF SOLUTIONS BOOK